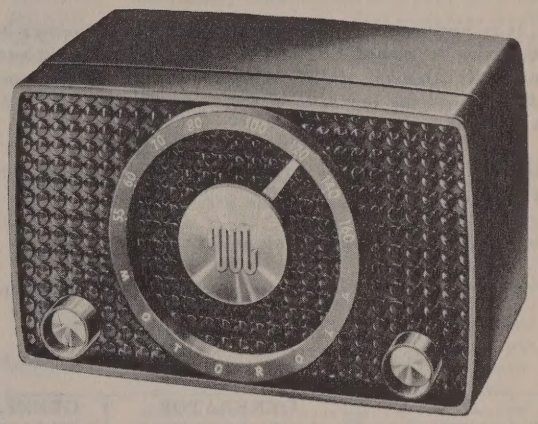
Motorola® HOME Radio

SERVICE MANUAL

MODELS
5H11U
5H12U
5H13U

CHASSIS
HS-244

GENERAL INFORMATION



TYPE - AC-DC table model superheterodyne receiver with loop antenna.

RECEIVER MODELS -

Model	Color
5H11U	Walnut
5H12U	Ivory
5H13U	Green

TUNING RANGE - 535 to 1620 Kc IF - 455 Kc

TUBE COMPLEMENT - 12BE6 - Converter
12BA6 - IF Amplifier
12AT6 - Det, AVC & 1st AF Amp
50C5 - Power Amplifier
35W4 - Rectifier

POWER SUPPLY - 117 volts AC or DC, 35 watts

INSTALLATION & OPERATING INSTRUCTIONS

POWER SWITCH AND VOLUME CONTROL. Operated with the left-hand knob. NOTE: Reverse the line cord plug in the wall outlet if radio does not operate from DC. When operating from AC, reversing the line cord plug in the wall outlet may sometimes improve reception

TUNING. Tune stations with the right-hand knob.

ANTENNA. A built-in loop antenna eliminates the need for an outside antenna in most locations. When receiving a weak station, rotate the receiver slightly for best signal strength. If additional pick-up is necessary, connect an external antenna to the radio by following the instructions printed on the rear panel. CAUTION: Never connect the radio chassis to a water pipe, radiator, or other ground.

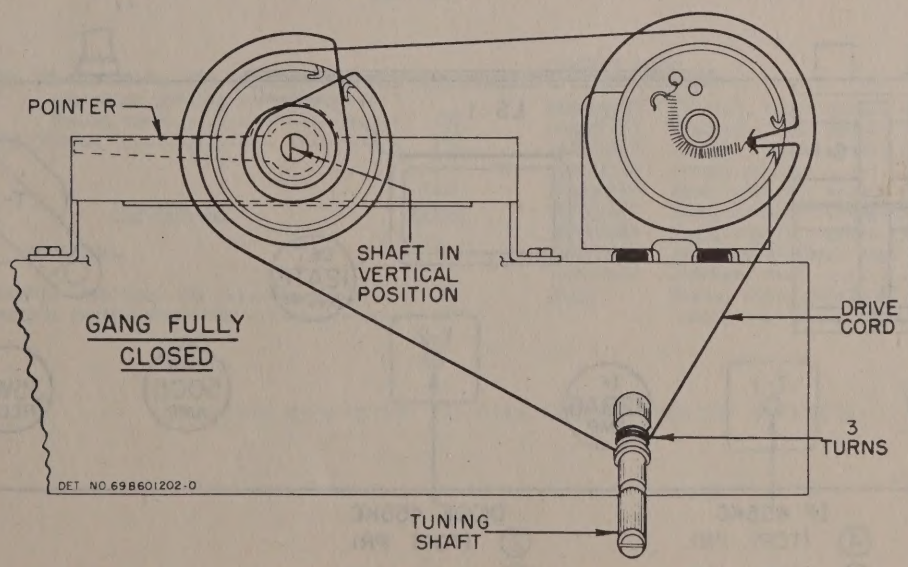


FIGURE 1. STRING DRIVE DETAIL

4545 AUGUSTA BOULEVARD Motorola Inc. CHICAGO 51, ILLINOIS

PART NO. 54P601212 Price 10 Cents PRINTED IN U.S.A.

SERVICE NOTES

The chassis of this receiver is isolated from the AC power line circuit by a capacitor to eliminate the shock hazard when handling the receiver. However, as an additional precaution when aligning or servicing the receiver from AC, an isolation transformer should be inserted between the power line and the chassis.

To remove the chassis from the cabinet:

1. Pull off the two radio control knobs.
2. Pull off the brass cover over the pointer.
3. Pull off the pointer.
4. Remove the split plugs which hold the loop to the cabinet.
5. From the back of the cabinet, remove the two hex head screws at the rear edge of the radio chassis.
6. Slide the radio chassis and loop from the cabinet.

ALIGNMENT

NOTE: It is recommended that an isolation transformer be placed between the power line and the receiver to avoid hum and electrical shocks. If an isolation transformer is not available, connect the low side of the signal generator to B- through a .1 mf capacitor.

1. Connect a low range output meter across the speaker voice coil.
2. Connect the low side of the signal generator to B-.
3. Set the signal generator for 400 cycle, 30% modulation.
4. Turn the receiver volume control to maximum.
5. Use a small fibre screwdriver for aligning the IF and diode transformers.
6. As stages are brought into alignment, reduce the signal generator output to a level which produces less than .40 volts (.05 watt) across the voice coil to avoid overloading the receiver.
7. See Figure 2 for adjustment locations and the following chart for procedure.

ALIGNMENT CHART

STEP	DUMMY ANTENNA	GENERATOR CONNECTION	GENERATOR FREQUENCY	GANG SETTING	ADJUST	REMARKS
IF ALIGNMENT						
1.	.1 mf	Grid of conv. (pin 7, 12BE6)	455 Kc	Fully open	1, 2, 3 & 4 (IF cores)	Adjust for maximum.
RF ALIGNMENT						
2.	-	Grid of conv. (pin 7, 12BE6)	1620 Kc	Fully open	5 (Osc)	Adjust for maximum.
3.	-	Radiation loop*	1400 Kc	Tune for max	6 (Ant)	Adjust for maximum.

*Connect generator output across 5" diameter, 5 turn loop and couple inductively to receiver loop. Keep loops at least 12" apart.

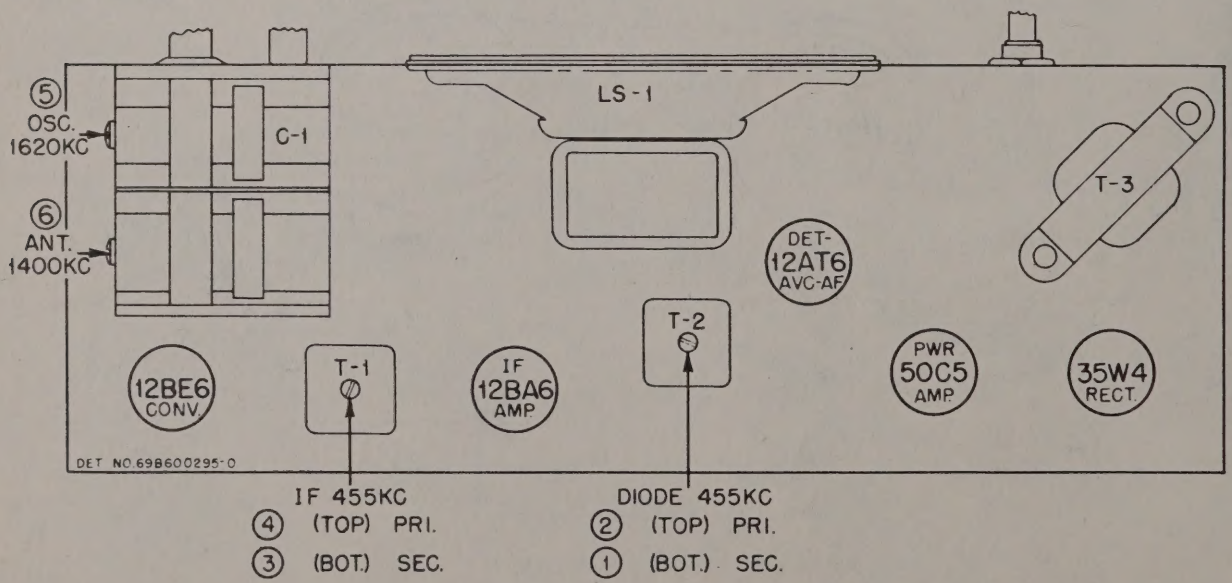


FIGURE 2. TUBE & TRIMMER LOCATIONS

REPLACEMENT PARTS LIST

NOTE: When ordering parts specify model number of set in addition to part number and description of part.

Ref. No.	Part Number	Description	List Price
CHASSIS PARTS - ELECTRICAL			
Capacitors			
C-1	19B600483	Variable, 2 gang: with pulley	2.30
C-2	8R9821	Paper: .05 mf 200V	.20
C-3	8R9816	Paper: .05 mf 400V	.20
C-4	8R9843	Paper: .15 mf 200V	.20
C-5	21B482847	Ceramic, multiple: 2000,220,220, 5000 mmf	.65
C-6	8R9802	Paper: .02 mf 400V	.20
C-7	23B600855	Electrolytic: 50-30 mf/150V	1.10
Capacitor-Resistor			
CR-1	21B601007	2000,110,110,5000 mmf; 6.8 meg; 470,000, 470,000 ohms	.85
Coils			
L-1	24C600518	Loop Antenna Assembly: includes back panel	1.00
L-2	24K600812	BC Oscillator	.20
Speaker			
LS-1	50C691401	Speaker, PM: 4"; 3.2 ohm VC	2.50
			exch 1.90
Resistors			
		Note: All resistors are insulated carbon type unless otherwise specified.	
R-1	6R6028	22,000 20% 1/2W .....doz	1.00
R-2	6R6018	100 20% 1/2W .....doz	1.00
R-3	6R2118	3.3 meg 20% 1/2W .....doz	1.00
R-4	18K600473	Volume control: 1 meg; includes on-off switch	1.00
R-5	6R2109	10 meg 20% 1/2W .....doz	1.00
R-6	6R6032	470,000 20% 1/2W .....doz	1.00
R-7	6R6032	470,000 20% 1/2W .....doz	1.00
R-8	6R3992	150 20% 1/2W .....doz	1.00
R-9	6R5683	27 10% 1/2W .....doz	1.00
R-10	6R3953	1000 20% 1W .....each	.15
		doz	1.45
Transformers			
T-1,2	24B485553	IF and Diode, 455 Kc: complete; including padding capacitors and tuning cores	.95
T-3	25K485973	Output	.65

Part Number	Description	List Price
CHASSIS PARTS - MECHANICAL		
7K485971	Bracket, loop back mtg	.05
7A600476	Bracket, tuning shaft mtg	.10
1X600606	Bracket and Bushing Assembly, pointer ...	.25
42A485548	Clip, coil can mtg .....doz	.20
11M8944	Cord, dial: 18 lb black .....yd	.10
30A470651	Cord, line and plug: 6 ft long	.75
5A19658	Eyelet, spacer (gang mtg) .....doz	.20
5A70404	Grommet, rubber (gang mtg) .....doz	.60
14A482844	Insulator, cord outlet .....doz	.25
29R3010	Lug, soldering .....doz	.30
2S7051	Nut, hex: Palnut (volume control mtg).doz	.15
1X600590	Pulley and Bushing Assembly, pointer drive	.25
5S7771	Rivet: .088 x 3/16 stl; nkl pl (tube socket mtg) .....per/c	.50
5S7707	Rivet: .122 x 5/32 stl; nkl pl (tube shield mtg, output transformer mtg and tuning shaft bracket mtg) .....per/c	.50
3S2294	Screw, machine: 6-32 x 1/2; lockscrew; plain hex head; stl; cad pl (gang mtg) .....doz	.15
3S7477	Screw, machine: 8-32 x 1/4; type #1; plain hex head; stl; cad pl (back mtg) .....doz	.15
3S2695	Screw, sheet metal: #6 x 3/16 PKZ plain hex head; stl; cad pl (pointer bracket mtg) .....per/c	.50
3S3398	Screw, sheet metal: #6 x 3/8 PKZ plain hex head; stl; cad pl (loop bracket mtg) .....per/c	.50
3S7454	Screw, sheet metal: #8 x 1/4 PKZ plain hex head; stl; cad pl (speaker mtg)per/c	.50
3S7148	Setscrew: 6-32 x 1/8; Allen head; stl; cad pl (pointer drive pulley retainer)..	.10
47K600598	Shaft, pointer: brass	.10
1K600594	Shaft and Pulley Assembly, tuning	.20
26A481521	Shield, spring (for 12BA6 tube) .....doz	.50
9A472534	Socket, tube: 7-prong	.15
9K580218	Socket, tube: 8-prong	.15
41A73996	Spring, tension (electrolytic mtg)	.05
41A14244	Spring, tension (drive cord) .....doz	.55
4K692188	Washer, "C" (tuning shaft retainer and pointer shaft retainer) .....doz	.20
4S7633	Washer, flat: 9/16 x 11/64 x .033 thick; stl; cad pl (loop back mtg) .....doz	.15
4K482859	Washer, insulated shoulder .....doz	.15
CABINET PARTS		
16E600461	Cabinet, table model: walnut (5H11U)	4.95
16K600463	Cabinet, table model: ivory (5H12U)	5.80
16K600465	Cabinet, table model: green (5H13U)	5.80
15B600569	Cover, pointer	.65
36B600566	Knob, control: walnut (5H11U)	.25
36K600567	Knob, control: ivory (5H12U)	.25
36K600568	Knob, control: green (5H13U)	.25
38A25507	Plug, split (back mtg) .....doz	.15
52B600537	Pointer, dial	.20
3S3371	Screw, sheet metal: #8 x 3/8 PKF plain hex head; stl; cad pl (chassis mtg) ...per/c	.50

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

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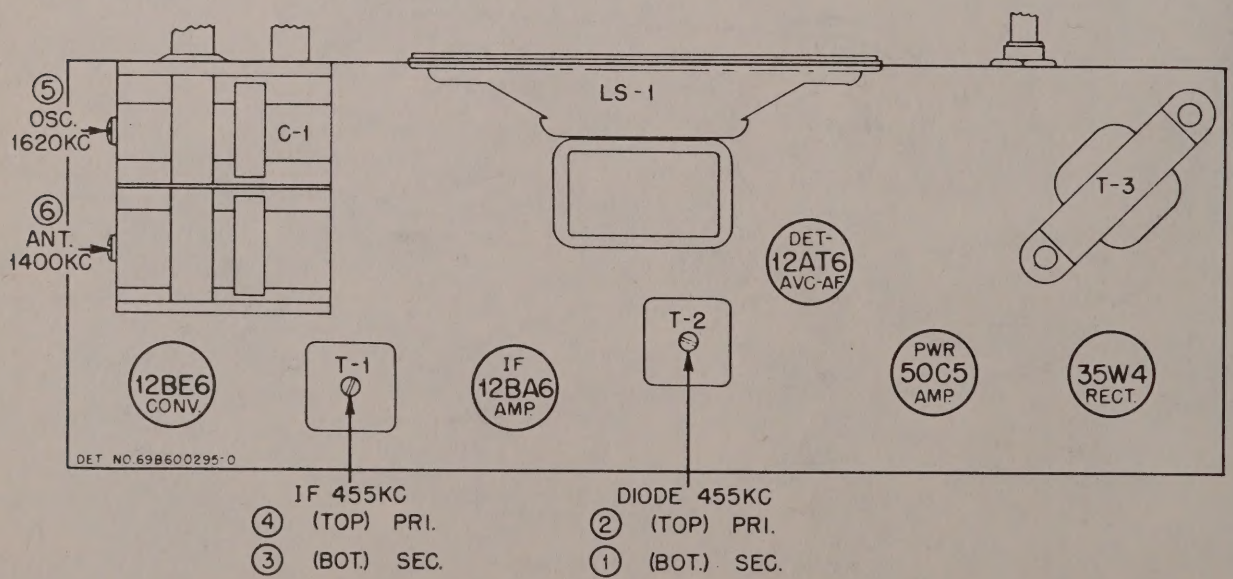

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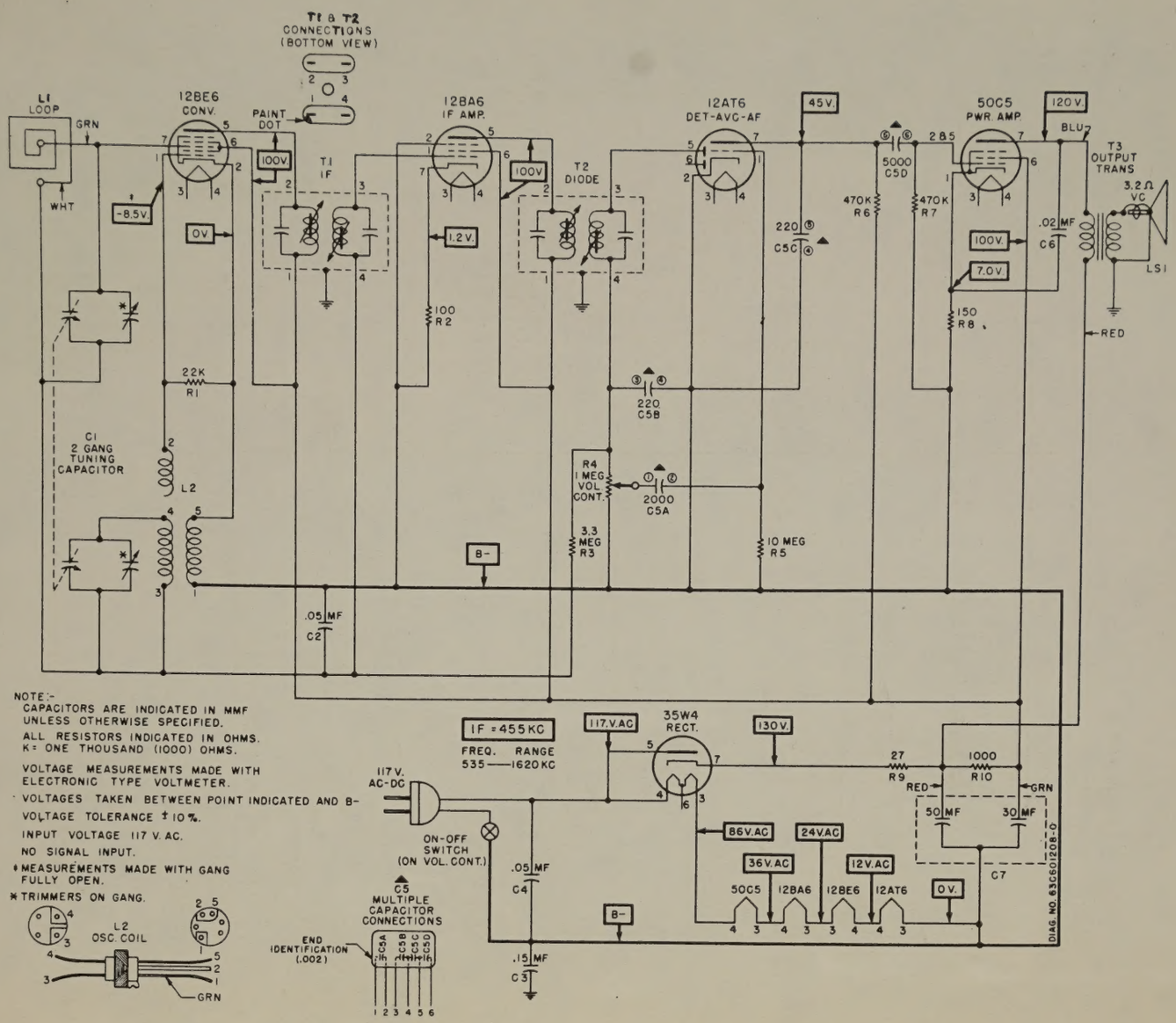

FIGURE 3. SCHEMATIC DIAGRAM OF CHASSIS USING MULTIPLE CERAMIC CAPACITOR

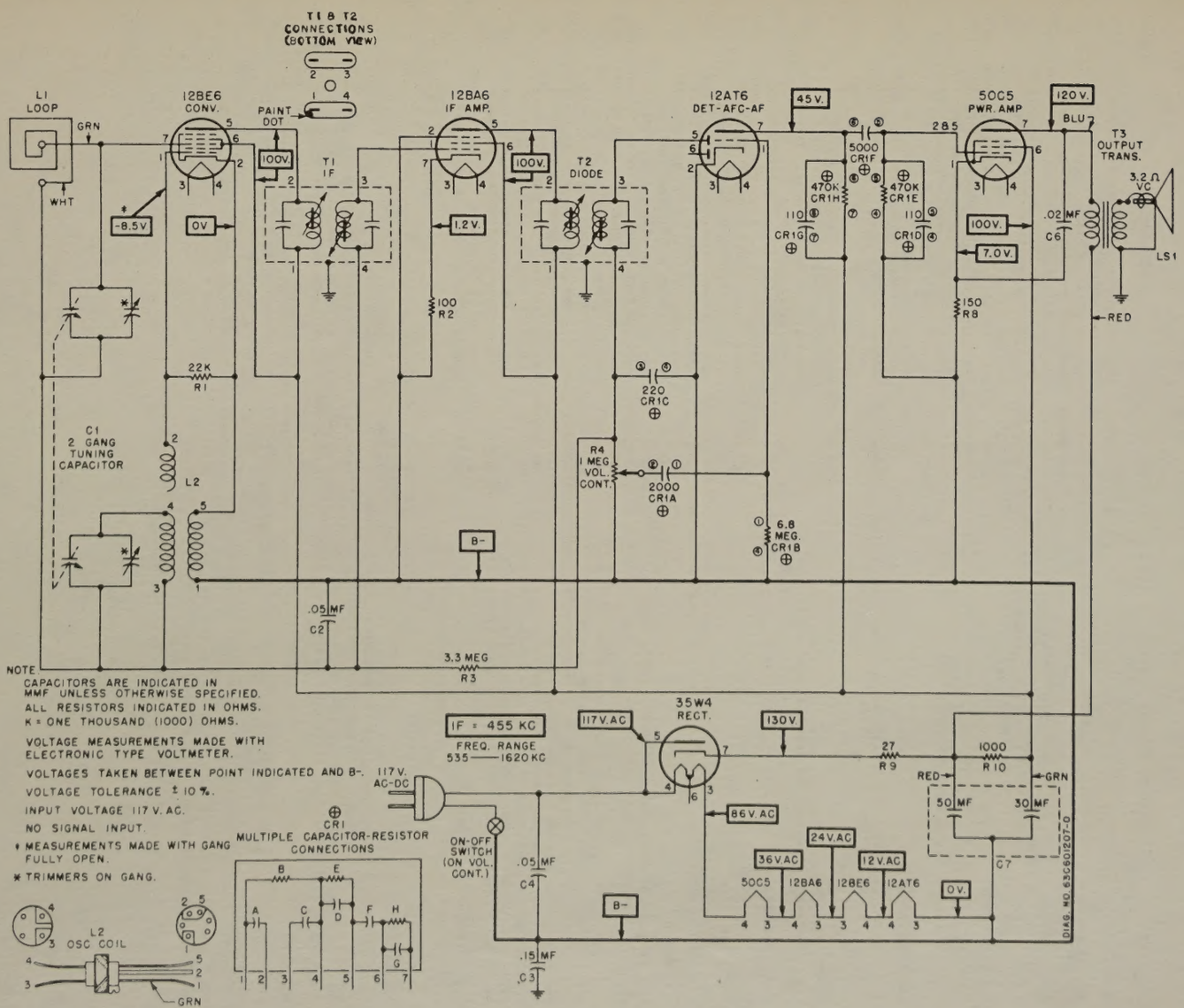

FIGURE 4. SCHEMATIC DIAGRAM OF CHASSIS USING MULTIPLE CERAMIC CAPACITOR-RESISTOR